

METAL STORAGE TANK COVER SLOPE AND PONDING

Rule Affected: Title 30 Texas Administrative Code (30 TAC) §290.43(c)

Background

The first rule revision to stipulate that storage tank covers must be sloped to prevent the collection of water was written in 1967. In 1988, these rules were revised to require tanks be designed and erected so water does not pond anywhere on the roof of the tank and no area of the storage tank roof shall have a slope of less than 0.75 inches per foot.

The purpose of the minimum roof slope requirement is to protect the metal from corrosion and to prevent unintended deformation of the roof caused by prolonged periods of standing rainwater. Over time, corrosion can create holes and allow contaminants to infiltrate the tank and compromise the stored water's quality. Human activity (such as walking across the roof) and normal environmental changes may also cause, or contribute to, localized deformation of the roof. Localized deformations can also be found in roofs that have been constructed in accordance with our minimum requirements and/or with other industry-accepted standards. For this reason, the TCEQ requires annual inspections of ground storage tanks (GST) with copies of the annual inspection reports to be maintained on file with the public water system (PWS).

This guidance document does not apply to domed roofs. If a domed roof complies with the minimum design and construction requirements specified in an American Water Works Association (AWWA) Standard, such as ANSI/AWWA Standard D108, the tank has been designed to shed water. If it cannot be verified that the dome was constructed in accordance with an AWWA Standard, it is recommended that the PWS evaluate (or have the PWS's consulting engineer evaluate) the tank geometry to determine approximate percentage of roof slope that meets the minimum 0.75-inch per foot slope requirement. If the domed tank roof complies with either an AWWA Standard or at least 95% of the roof slope meets the 0.75-inch per foot slope requirement, an exception with no conditions may be granted. If more than 5% of the domed roof (of a non-AWWA Standard tank) fails to meet the 0.75 -inch per foot slope requirement, consult with a senior PTRS staff member on the best way to proceed.

Plan Review Guidance

If the submittal indicates that the roof of the steel tank has a dome shaped roof and it is designed as per the most current AWWA Standard (AWWA D108), an exception to the roof slope requirement is not required for the tank.

Exception Guidance

For non-domed tanks that fail to meet the minimum roof slope requirement, the PWS must submit a condition assessment with photographs of their GST to Technical Review and Oversight Team (TROT) for review. If the condition of the GST does not support approval of a long-term exception request, a temporary exception may be considered to provide the PWS time to make repairs and/or provide design modifications to meet the

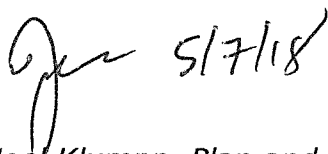
minimum slope requirement. If the GST is found to be in good condition, an exception can be granted for metal tank covers with a roof slope less than the minimum slope of 0.75 inches per foot but greater than 0.25 inches per foot with the following conditions:

1. Within 12 hours following each rain event, if the rain event is greater than ¼ inches, the water system staff must inspect the roof for water ponding. If ponding has occurred, the excess water must be removed from the roof. A record of monitoring and of completed corrective actions following rain events must be kept on file for at least two years and made available for review by TCEQ staff upon request.
2. The PWS must conduct visual inspections of the GST for corrosion and holes on at least an annual basis. The condition of the exterior paint, and any defects such as holes, must be noted and photographed as part of the annual inspection. These inspection records must be kept on file for at least two years and made available for review by TCEQ staff upon request.
3. Any breaches or holes found in the roof of the tank must be repaired as soon as possible. A record of any repair activities must be retained for a period of at least two years in accordance with 30 TAC §290.46(f)(3)(A)(vi) and must be made available for review by TCEQ staff upon request.

Failure to meet any of these conditions will require the TCEQ to reevaluate the approved exception with the possibility of revocation of the exception.

If the slope of the tank is less than 0.25-inch per foot, the exception should be denied.

Finalized and Approved by:

Handwritten signature of Joel Klumpp, dated 5/7/18.

Joel Klumpp, Plan and Technical Review Section Manager, 05/07/2018

If no formal expiration date has been established for this staff guidance, it will remain in effect until superseded or canceled.

Revision History

| Date | Action | Action by |
|-------------|---------------|------------------|
| 2009 | Approved | Elston Johnson |
| 09/23/2013 | Approved | Ada Lichaa |
| 07/27/2016 | Approved | Joel Klumpp |
| 10/12/2017 | Reviewed | David Williams |
| 02/19/2018 | Revised | Yadhira Resendez |
| 05/07/2018 | Approved | Joel Klumpp |